

# Planning for the Future of Erosion Management in Alaska

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# Overview

- **The Alaskan Perspective**
- **Planning for Erosion Risk Management**
- **Taking Action Now**
- **Statewide Assessment and Prioritization**
- **Coordinating with Stakeholders**

# The Alaskan Perspective



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# Alaska Erosion Programs

- **Alaska Village Erosion Technical Assistance Program (AVETA)**
  - Tribal Partnership Program, Section 203, WRDA 2000, Public Law 106-51
- **Alaska Coastal Erosion**
  - Section 117 of the Energy and Water Development Appropriations Act, 2005, Public Law 108-447
- **Baseline Erosion Assessment**
  - Energy and Water Development Appropriations Act, 2005, Public Law 108-447

# AVETA Communities and Questions

Bethel

Dillingham

Kaktovik

Kivalina

Newtok

Shishmaref

Unalakleet  
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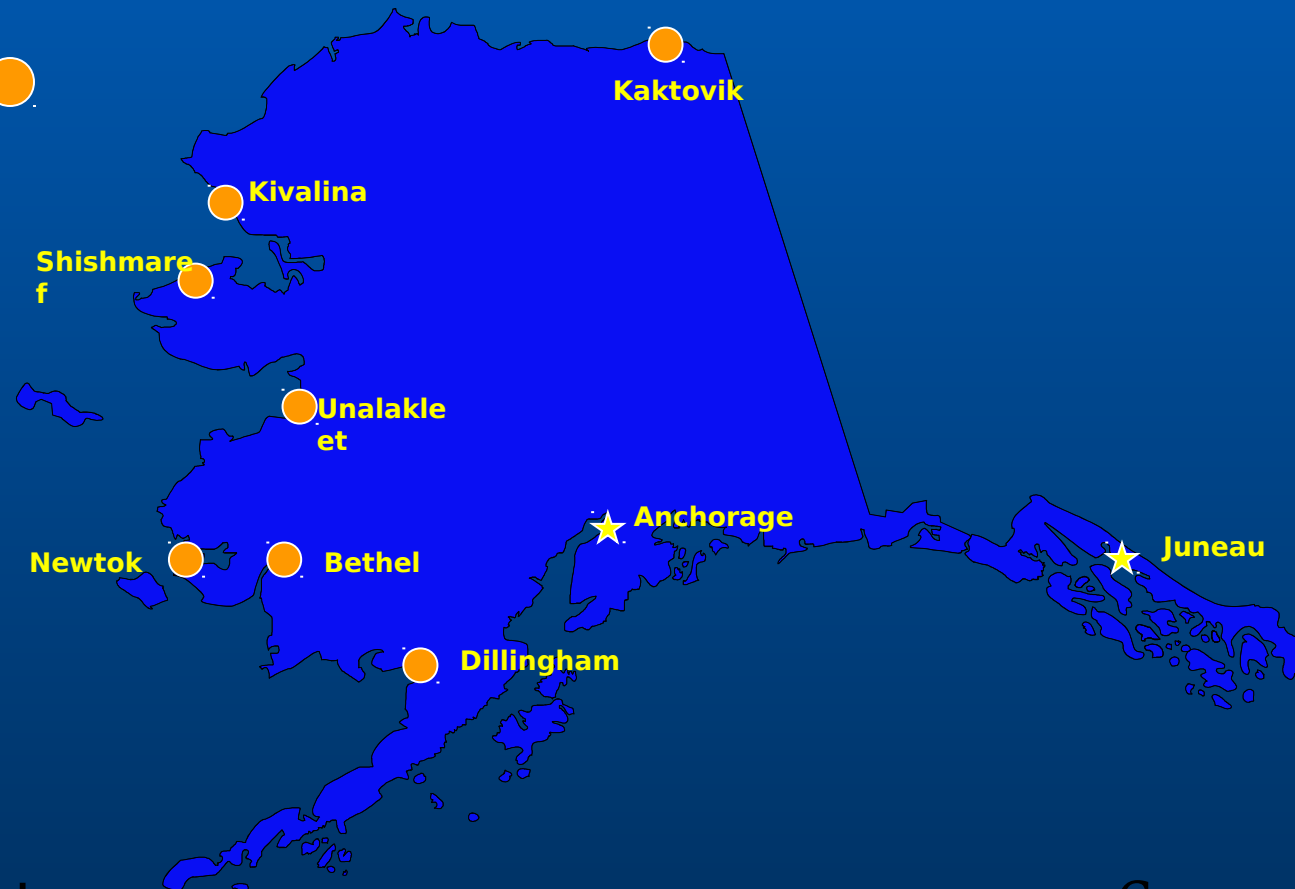
- **What is the cost of the erosion?**

- **What does it cost to relocate?**

- **How long does the village have left?**

# AVETA Communities

AVETA Communities



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# AVETA Planning Issues

- **Who selects the new site?**
- **What are the criteria for selecting the new site?**
- **Does the community move all at once?**
- **What is to be done with the existing site?**
- **Should the community be moved as-is or should it be upgraded?**
- **What needs to happen first for relocation?**

# AVETA Planning Issues Continued

- **What is the timeline for relocation?**
- **What costs are directly related to erosion and which are related to other issues?**
- **What agency has the lead?**
- **Do existing programs have sufficient funding?**
- **Is relocation worth the cost?**
- **How does climate change effect erosion in Alaska?**

# AVETA - Kivalina



- What is the cost of the erosion?
  - *\$14 million*
- What does it cost to relocate?
  - *\$68 million*
- How long does the village have left?
  - *Not determined*

# AVETA - Newtok



- What is the cost of the erosion?
  - *\$89 million*
- What does it cost to relocate?
  - *\$93 million*
- How long does the village have left?
  - *10 to 15 years*

# AVETA - Shishmaref



- What is the cost of the erosion?
  - *\$50 million*
- What does it cost to relocate?
  - *\$150-200 million*
- How long does the village have left?
  - *10 years*

# Alaska Coastal Erosion

*“SEC. 117. Notwithstanding any other provision of law, the Secretary of the Army is authorized to carry out, at full Federal expense, structural and non-structural projects for storm damage prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities.”*

# Section 117 Activities

- **Kivalina - Revetment Planned**
- **Newtok - Emergency Shelter**
- **Shishmaref - Partial Construction Complete**
- **Unalakleet - Revetment Planned**
- **Koyukuk - Emergency Shelter**

# Shishmaref Revetment



Post 2004 Erosion

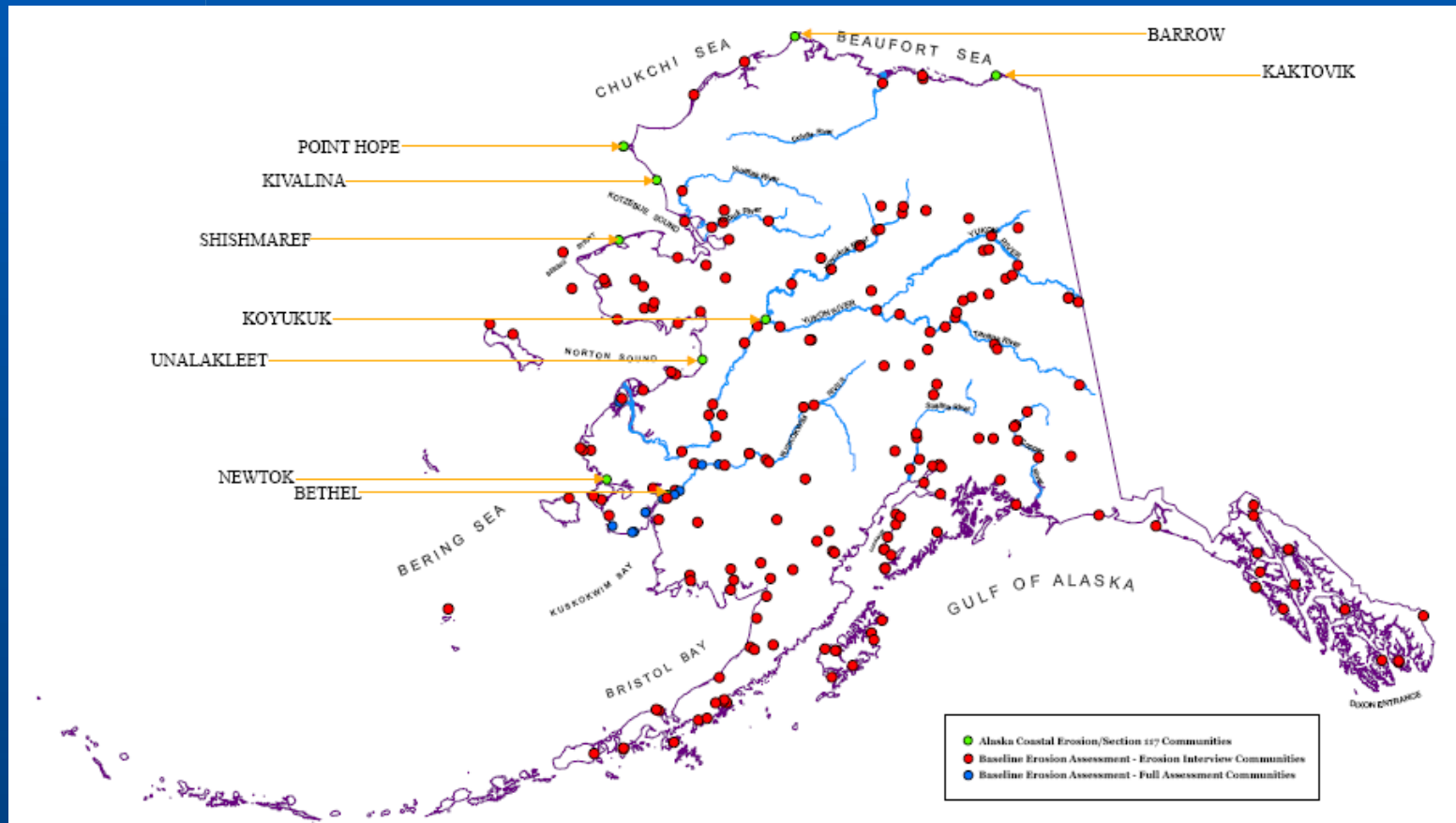


Installed  
Revetment

# AVETA – Baseline Erosion

*“The conference finds there is a need for an Alaska erosion baseline study to coordinate and plan the appropriate responses and assistance for Alaska villages in the most need and to provide an overall assessment on the priority of which villages should receive assistance. Therefore, the conference has provided the \$2,000,000 for this study.”*

# Alaska Communities With Erosion



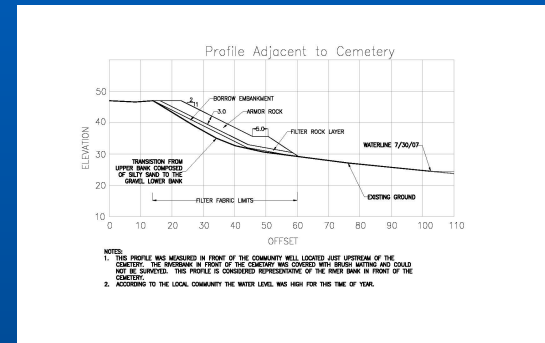
# Assessment Process

- **Inter Agency Coordination**
- **Detailed Erosion Assessments**
- **Erosion Information Papers**
- **Expedient Erosion Projects**

# Baseline Assessment Products



Expedited Measures



Prototype Solutions



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Erosion  
Assessments

18

# Baseline Prioritization Strategy

- What Are We Really Prioritizing?
- What Criteria and Factors Are Being Considered?
- How Do We Prioritize?
- What Are the Outcomes?



Shishmaref  
Shoreline



Preserving the  
Catch

# Prioritization Factors

- Critical Infrastructure
- Human Health and Safety
- Subsistence and Shoreline Use
- Community Setting
- Housing and Population Affected
- Housing in Parallel
- Environmental Hazard
- Cultural Importance
- Commercial/  
Non-Residential



Curing Seal Skins



Boat Construction

# ATTACHMENT 1 - DRAFT COMMUNITY RANKING METHODOLOGY

| SCORES FOR<br>COMMUNITY RANKING CRITERIA<br>BASED UPON INFORMATION IN EIPS           |                                                                                                                                                                                                                                                                                                            | Community 1 | Community 2 | Community 3 | Community 4 | Community 5 | Community 6 | Community 7 | Community 8 | Community 9 | Community 10 | Community 11 | Community 12 |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| SEVERITY OF DAMAGE:                                                                  |                                                                                                                                                                                                                                                                                                            |             |             |             |             |             |             |             |             |             |              |              |              |
| Critical<br>Infrastructure<br>(for example,<br>School, Utilities,<br>Transportation) | <b>(1) LOW IMPACT:</b> <ul style="list-style-type: none"> <li>One item of critical community infrastructure at risk</li> <li>Loss of infrastructure would not result in loss of community sustainability</li> <li>Damage could be repaired or alternative service restored in less than 1 month</li> </ul> |             |             |             |             |             |             |             |             |             |              |              |              |
|                                                                                      | <b>(2) MEDIUM IMPACT:</b> <ul style="list-style-type: none"> <li>More than one item of critical community infrastructure at risk</li> <li>Loss would not result in loss of community sustainability</li> <li>Damage could be repaired or alternative service restored between 1 and 6 months</li> </ul>    | 0           | 1           | 1           | 1           | 1           | 1           | 2           | 2           | 2           | 3            | 3            | 3            |
|                                                                                      | <b>(3) HIGH IMPACT:</b> <ul style="list-style-type: none"> <li>More than one item of critical community infrastructure at risk</li> <li>Loss would impact community sustainability</li> <li>Repaired or establishment of alternative service would take more than 6 months</li> </ul>                      |             |             |             |             |             |             |             |             |             |              |              |              |

# ATTACHMENT 1 - DRAFT COMMUNITY RANKING METHODOLOGY

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|----------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| <b>DAMAGE SCORE:</b>                                                       | 0           | 18          | 18          | 18          | 18          | 18          | 36          | 36          | 36          | 54           | 54           | 54           |

| TIME UNTIL DAMAGE:                           |                                                                                                                                                                                                                                          |     |     |     |     |      |     |     |     |      |     |     |      |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|------|-----|-----|-----|------|-----|-----|------|
| TIME UNTIL<br>DAMAGE RATING                  | <u>Enter One of Following Values<br/>or Select from Drop Down List:</u><br>3 for Short Term (1 to 10 Years)<br>2 for Mid Term (10 to 20 years)<br>1 for Long Term (20 years and<br>beyond)                                               | 1   | 2   | 2   | 2   | 2    | 3   | 1   | 2   | 3    | 1   | 2   | 3    |
| CONFIDENCE IN<br>TIME UNTIL<br>DAMAGE RATING | <u>Enter Closest of following<br/>Values or Select from Drop<br/>Down List:</u><br>25% Confidence Rating<br>(Hunch)<br>50% Confidence Rating<br>(Educated Guess)<br>75% Confidence Rating (Think<br>so)<br>100% Confidence Rating (Sure) | 25% | 25% | 50% | 75% | 100% | 25% | 25% | 75% | 100% | 25% | 75% | 100% |

| COMMUNITY RANKING SCORES: |     |      |      |      |      |      |      |      |       |      |       |       |
|---------------------------|-----|------|------|------|------|------|------|------|-------|------|-------|-------|
| COMMUNITY RANKING SCORE:  | 0   | 36   | 36   | 36   | 36   | 54   | 36   | 72   | 108   | 54   | 108   | 162   |
| CONFIDENCE RANGE LOW:     | 0.0 | 22.5 | 27.0 | 31.5 | 36.0 | 40.5 | 36.0 | 63.0 | 108.0 | 54.0 | 94.5  | 162.0 |
| CONFIDENCE RANGE HIGH:    | 0.0 | 49.5 | 45.0 | 40.5 | 36.0 | 54.0 | 63.0 | 81.0 | 108.0 | 94.5 | 121.5 | 162.0 |

# Other Activities

- **Alaska Immediate Action Workgroup**
- **Newtok Relocation Taskforce**
- **Denali Commission**
- **NOAA Coordination**
  - **AOOS**
  - **ARCTic ISP**
- **Telling the Story**

# In Summary

- **Addressing Alaska Erosion Important and Challenging**
- **Out of the Box Planning Required**
- **Already Turning Dirt**
- **Much More to Come**
- **Coordinate, Coordinate, Coordinate**

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